REMARKS

Claim 1 has been amended to define further and more fully a novel and distinguishing feature of the invention (melt viscosity not greater than 125 mPas•sec at 140°C.); the added recital is supported by the disclosure of Toner Manufacturing Example 3 in the original specification (pp. 26-29). Claim 25 has been again amended in response to the objection and the rejection under 35 U.S.C. §112, second paragraph, as indefinite. Since this Amendment does not increase either the total number of claims or the number of independent claims (beyond that previously paid for), no additional fee is necessary.

Claims 1 - 7 and 25 are in the application. All claims have been finally rejected.

Claim 25

In response to the rejection of claim 25 under §112, second paragraph, as indefinite for lack of an antecedent for "the toner" (final Office Action, numbered paragraph 5), the claim has been amended to recite that "each of the color toners further comprises an aromatic hydrocarboxylic acid metal salt." A similar amendment was previously made in claim 6. It is believed that this amendment fully and self-evidently overcomes the §112 rejection.

Additionally, claim 25 has been amended to delete the superfluous first word "The," thereby to correct the informality noted in the Examiner's objection set forth in numbered paragraph 6 of the Action.

Since no other ground of rejection or objection is asserted against claim 25 in the final Office Action (other than the obviousness-type double patenting rejection, discussed below), it is submitted that claim 25 as herein amended is now allowable.

The Double Patenting Rejection

The provisional obviousness-type double patenting rejection (Office Action, numbered paragraph 15) is noted. Since no patent has yet issued on application No. 10/302,898, it is believed unnecessary to submit a terminal disclaimer at this time.

The §103(a) Rejection

The outstanding grounds of rejection of claims 1 - 7 under 35 U.S.C. §103(a) are as follows:

(1) Elsermans combined with Iwasaki[1] and further combined with Kuramoto '478 in the rejection of claims 4 and 5;

(2) Iwasaki combined with McInally and Moser, with which Kuramoto '478 is further combined against claims 4 and 5;

(3) Aoki combined with Moser and Iwasaki, with which Kuramoto '478 is further combined against claims 4 and 5;

(4) Takahashi combined with Moser and Iwasaki, with which Kuramoto '478 is further combined against claims 4 and 5; and

(5) Hata combined with Moser and Iwasaki, with which Kuramoto '478 is further combined against claims 4 and 5.

The last three grounds of rejection are characterized as cumulative in numbered paragraph 13 on p. 6 of the aforesaid Office Action.

In response to these five grounds of rejection, applicants once more submit that claim 1, and claims 2 - 7, dependent on claim 1, distinguish patentably over the applied references, however combined, essentially for the reasons set forth in their First Reply to Final Rejection mailed March 27, 2003, and in the

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[1]In applying Iwasaki, the Office Action refers to certain Chemical Abstract registry numbers and another publication as establishing that the yellow, magenta and cyan toners identified by Iwasaki meet the recitals of applicants' claim 1. For brevity, these additional citations are not mentioned in the following discussion, but it is to be understood that reference herein to "Iwasaki" means Iwasaki as evidenced by the additional citations.

Remarks of their Amendments filed October 30, 2003, and July 9, 2004, all of which are incorporated herein by this reference.

In addition, as herein amended, all the clams are limited to a method wherein the color toners have a melt viscosity not greater than 125 mPas•sec at 140°C (claims 1, 2 and 4 - 7) or not greater than 120 mPas•sec at 140°C (claims 3 and 25).

The comments of the Examiner on claim 3 at p. 10 in the Office Action of June 27, 2003, are as follows:

> "The specification discloses that it is preferred that the toners have a melt viscosity not greater than 120 mPa•sec at 140°C. Iwasaki discloses that his color toners provide full color images having good color reproducibility. See Table 1, example 1 and Table 3, example 13. Because Iwasaki's color toners meet the compositional limitation recited in instant claim 3, and produce full color images having good color reproducibility, it is reasonable to presume that Iwasaki's color toners have the required melt viscosity recited in instant claim 3. The burden is on applicants to prove otherwise."

However, it is described in col. 9, line 6, of Iwasaki's specification that it is desirable that the binder resin should have a melting viscosity V2 at 100°C of 5×10^4 to 1×10^6 poise.

In this regard, applicants note that 5×10^4 poise is equal to 5,000 Pas•sec, i.e., 5,000,000 mPas•sec.

It is disclosed in the web-site mentioned below

http://www.csuchico.edu/~jpgreene/itec142/m142_cex04/sld026.htm

(print-out attached) that the melt viscosity decreases at a rate of from 5% to 20% as the temperature increases by 1 degree.

Assuming that the melt viscosity is decreased at a rate of 20%/°C, the resin included in the Iwasaki toner has the following melt viscosity at 140°C:

$$5{,}000{,}000 \times (0.80)^{40} = 665 \text{ mPas•sec.}$$

Namely, the melt viscosity of the resin used in the Iwasaki toner is at least 665 mPas•sec.

Since the melt viscosity of the binder resin is almost the same as that of the toner, the melt viscosity of the Iwasaki toner is considered to be much higher than the upper limit (i.e., 120 or 125 mPas•sec at 140°C) of the melt viscosity in the present invention.

The reason why the Iwasaki toner can produce images with good color reproducibility although the toner has relatively high melt viscosity is considered to be that a roller fixing method (i.e., a contact fixing method) is used instead of a noncontact fixing method, as illustrated in the Figures of Iwasaki.

In full color images, the interfaces between different color images, which are overlaid, have to be smooth to avoid diffuse reflection. If images are produced using color toners having a high melt viscosity like Iwasaki's toner and a noncontact fixing method, the resultant toner images have poor color reproducibility (particularly, it is difficult to reproduce color images while balancing red color and blue color).

With respect to Elsermans, the binder resin therein has a melt viscosity of at least 500 poise up to no more than 15000 poise although the measurement temperature is unknown.

Since 500 poise is equal to 50,000 mPas•sec. and 1500 poise is equal to 1,500,000 mPas•sec, the melt viscosity of Elsermans is much higher than that of the present toner.

It is therefore submitted that the applied references, considered together in the combinations proposed by the Examiner, do not suggest or make obvious any method, meeting the recitals of the present claims, wherein the color toners have a melt viscosity not greater than 120 or 125 mPas•sec at 140° C. Consequently, it is further submitted that the recital of this limitation, in the defined combination with the other features set forth in the claims, distinguishes all the claims patentably over the applied references and any proper combination thereof.

For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,

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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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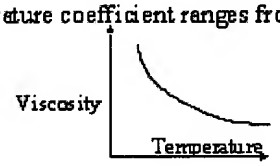
Reg. No. 22,031 Date MARCH 28, 2005

Effect of Temperature on Viscosity

- **When temperature increases↑ = viscosity reduces ↓**
- **Temperature varies from one plastic to another**
  - Amorphous plastics melt easier with temperature.
    - Temperature coefficient ranges from 5 to 20%,
    - Viscosity changes 5 to 20% for each degree C change in Temp
    - Barrel changes in Temperature has larger effects
  - Semicrystalline plastics melts slower due to molecular structure
    - Temperature coefficient ranges from 2 to 3%



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